

INCH-POUND

MIL-PRF-1/988H
16 December 2002
SUPERSEDING
MIL-PRF-1/988G
27 August 1999

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, VOLTAGE REGULATOR
TYPE 7615

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein shall consist of this specification and MIL-PRF-1.

DESCRIPTION: Corona discharge.

Dimensions: See figure 1.

Mounting position: Any.

Weight: 0.23 ounces (6.5 grams) nominal.

ABSOLUTE RATINGS:

Parameter:	Ez	Eb	Ib	TA
Unit:	V dc	V dc	μ A dc	°C
Maximum:	730	690	55	+50
Minimum:	---	670	5	-20
Test conditions:	---	---	---	---

GENERAL:

Qualification: Not required.

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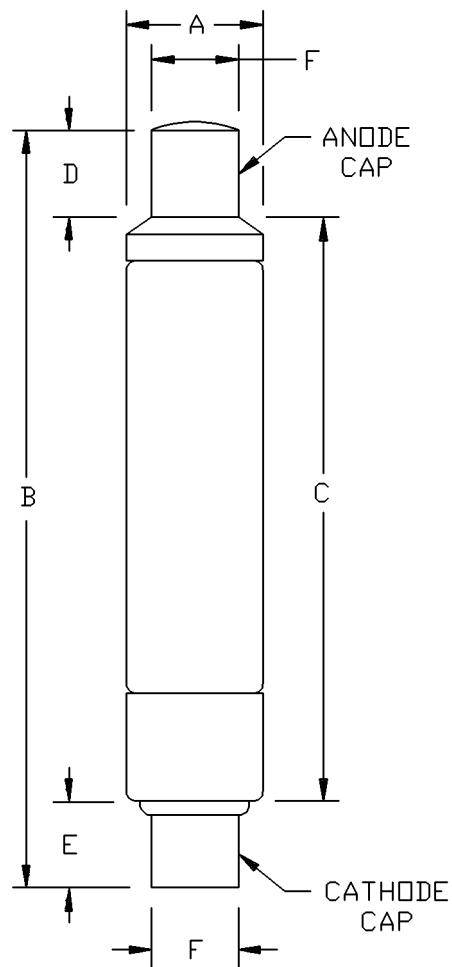
TABLE I. Testing and inspection.

Inspection	Method	Notes	Conditions	Acceptance level 9/	Symbol	Limits		Unit
						Min	Max	
<u>Conformance inspection, part 1</u>								
Ionization voltage (total darkness)	3347	3/		0.65	Ez	---	730	V dc
Voltage drop	3337	4/	Ebb/lb = 20 μA dc	0.65	Eb	670	685	V dc
Regulation	3335	4/ 5/	lb = 5 to 55 μA dc	0.65	ΔEb	---	4	V dc
Peak current	---	2/	Ebb/lb = 150 μA dc	0.65	---	---	---	---
Holding period end points:	---							
Ionization voltage	3347	3/ 7/		0.65	{ Ez ΔEb(1) ΔEb	---	730	V dc
Change in voltage drop	---	4/ 7/		0.65		---	±3	V dc
Regulation	3335	4/ 7/		0.65		---	4	V dc
Short and discontinuity detection	1201	---		0.4	---	---	---	---
<u>Conformance inspection, part 2</u>								
Leakage current	3305	---	Eb = 500 V dc; T = 25°C ± 5°C; relative humidity = 90 ± 5 percent		Lib	---	0.5	μA dc
Temperature range, operating	1026	6/	T = -20°C to +50°C; lb = 20 μA dc		---	---	---	---
<u>Conformance inspection, part 3</u>								
Life test	---	---	Group A; EBB/lb = 20 ± 2.5 μA dc; t = 500 hours		---	---	---	---
Life-test end points:	---							
Ionization voltage	3347	3/			Ez	---	730	V dc
Voltage drop	3337	4/			Eb	670	690	V dc
Regulation	3335	4/			ΔEb	---	5	V dc
Shock	1041	8/	Hammer angle = 20°		---	---	---	---
Low-frequency vibration	1031	1/ 8/	No voltages applied; F = 25 Hz		---	---	---	---

See footnotes at top of next page.

TABLE I. Testing and inspection - Continued.

- 1/ Criterion for passing the vibration test shall be compliance after test with initial requirements for voltage drop and regulation.
- 2/ Ebb shall be increased continuously until $I_b = 150 \mu\text{A}$ dc. The voltage drop shall not go below its value at $I_b = 55 \mu\text{A}$ dc.
- 3/ The tube under test shall not have been in conduction for at least 30 minutes prior to test. During this test, the regulator tube shall not be exposed to external sources of radiation and shall be shielded from light. No conditioning current is permitted.
- 4/ The tube shall be operated at the current specified for a period of at least 10 minutes prior to taking readings.
- 5/ ΔE_b maximum shall not be exceeded anywhere within the range 5 to $55 \mu\text{A}$ dc. In testing for regulation, current shall be varied continuously through the range of 5 to $55 \mu\text{A}$ dc.
- 6/ ΔE_b shall not exceed +4 V dc in going from room temperature ($25^\circ\text{C} \pm 5^\circ\text{C}$) to $+50^\circ\text{C}$. ΔE_b shall not exceed the limits of 0 to -5 volts when going from room temperature to -20°C . Ionization voltage and regulation shall remain within room temperature limits.
- 7/ The holding period commences upon completion of all production tests. At the conclusion of the holding period, the specified tests shall be performed again. Of the tubes failing the holding period end-point test, those which fail with respect to change in voltage drop only, may be retested after an additional 30-day period. $\Delta E_b(1)$ is the change in voltage drop from beginning to end of the holding period.
- 8/ This test shall be performed during the initial production and once each succeeding 12-calendar months in which there is production. A sampling plan shall be used, with a sample of six tubes with an acceptance number of zero. In the event of failure, the test will be made as a part of conformance inspection, part 2. The regular "12-calendar month" sampling plan shall be reinstated after three consecutive samples have been accepted.
- 9/ This specification sheet uses an accept on zero defect sampling plan in accordance with MIL-PRF-1, table III.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 2				
A	---	.395	---	10.03
B	2.125	2.250	53.98	57.15
C	1.625	1.750	41.28	44.45
Reference dimensions				
D	.250		6.35	
E	.250		6.35	
F	.250		6.35	

NOTE: Mechanical configuration and materials used may vary, provided all specified dimensions are met.

FIGURE 1. Outline drawing of electron tube type 7615.

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Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5960-3616)

Review activities:

Army - AR
Navy - AS, CG, MC, OS